

WHAT IS CLAIMED IS:

1. An image acquiring device for performing time lapse imaging, comprising:

5 an imaging portion which performs imaging of a subject;

a time lapse imaging condition setting portion which sets a time lapse imaging condition including at least an exposure time and an imaging interval, prior to the imaging of the subject by the imaging portion;

10 a determining portion which determines a contradiction of the time lapse imaging condition set by the time lapse imaging condition setting portion according to a predetermined criterion; and

15 a presenting portion which presents at least information relating to the contradiction of time lapse imaging condition based on a determined result by the determining portion.

2. The image acquiring device for performing time lapse imaging according to claim 1, wherein the determining portion determines the contradiction of the time lapse imaging condition by using a relation between the exposure time and the imaging interval as the predetermined criterion.

25 3. The image acquiring device for performing time lapse imaging according to claim 2, further comprising:

an avoiding condition generating portion which generates a plurality of time lapse imaging conditions

for avoiding the contradiction of the time lapse
imaging condition based on the determined result by the
determining portion, and causes to present information
relating to the plurality of time lapse imaging
5 conditions by the presenting portion;

a selecting portion which selects one of time
lapse imaging condition from within the information
relating to the plurality of time lapse imaging
conditions presented by the presenting portion; and

10 an instructing portion which instructs the imaging
portion to execute time lapse imaging based on the time
lapse imaging condition selected by the selecting
portion.

4. The image acquiring device for performing time
15 lapse imaging according to claim 3, further comprising:

an exposure time setting portion which sets the
exposure time set by the time lapse imaging condition
setting portion to the imaging portion; and

a gain setting portion which enables setting of
20 gain of an output signal from the imaging portion,

wherein, when the determining portion determines
the contradiction of the time lapse imaging condition
in which the exposure time is longer than the imaging
interval, the avoiding condition generating portion
25 changes a set value of the exposure time by the
exposure time setting portion to an exposure time
shorter than the imaging interval, and sets a value

of the gain set by the gain setting portion based on a value determined from a ratio of the exposure time after change and the imaging interval.

5 5. The image acquiring device for performing time lapse imaging according to claim 3, further comprising:

 an exposure time setting portion which sets the exposure time set by the time lapse imaging condition setting portion to the imaging portion; and

10 a brightness correcting portion which enables correction of brightness of an image by an output signal from the imaging portion,

 wherein, when the determining portion determines the contradiction of the time lapse imaging condition in which the exposure time is longer than the imaging interval, the avoiding condition generating portion
15 changes a set value of the exposure time by the exposure time setting portion to an exposure time shorter than the imaging interval, and sets a value for correcting the brightness of the image by the
20 brightness correcting portion based on a value determined from a ratio of the exposure time after change and the imaging interval.

 6. The image acquiring device for performing time lapse imaging according to claim 3, further comprising:

25 an exposure time setting portion which sets the exposure time set by the time lapse imaging condition setting portion to the imaging portion;

a gain setting portion which enables setting of gain of an output signal from the imaging portion; and

a brightness correcting portion which enables correction of brightness of an image by the output
5 signal from the imaging portion,

wherein, when the determining portion determines the contradiction of the time lapse imaging conditions in which the exposure time is longer than the imaging interval, the avoiding condition generating portion
10 changes a set value of the exposure time by the exposure time setting portion to an exposure time shorter than the imaging interval, and sets a value of the gain set by the gain setting portion to a value determined from a ratio of the exposure time after
15 change and the imaging interval, and when a set gain value exceeds a maximum gain value, sets the maximum gain value as the value of the gain set by the gain setting portion and sets a value for correcting the brightness of the image by the brightness correction
20 part based on a value determined from a ratio of the value of the gain determined from the ratio and the maximum gain value.

7. The image acquiring device for performing time lapse imaging according to claim 1, wherein the imaging
25 portion includes an imaging portion of a microscopic image acquiring device.

8. An image acquiring method for performing time

lapse imaging, comprising:

preparing an imaging portion which performs
imaging of a subject;

5 setting a time lapse imaging condition including
at least an exposure time and an imaging interval,
prior to the imaging of the subject by the imaging
portion;

10 determining a contradiction of the time lapse
imaging condition set by including at least the
exposure time and the imaging interval according to
a predetermined criterion; and

15 presenting at least information relating to the
contradiction of the time lapse imaging condition based
on a determined result of the contradiction of the time
lapse imaging condition, by a presenting portion.

20 9. The image acquiring method for performing time
lapse imaging according to claim 8, wherein the
determining determines the contradiction of the time
lapse imaging condition by using a relation between
the exposure time and the imaging interval as the
predetermined criterion.

10. The image acquiring method for performing time
lapse imaging according to claim 9, further comprising:

25 generating a plurality of time lapse imaging
conditions for avoiding the contradiction of the
time lapse imaging condition based on the determined
result of the contradiction of the time lapse imaging

condition, and presenting information relating to the plurality of time lapse imaging conditions by the presenting portion;

5 selecting one of time lapse imaging condition from within the information relating to the plurality of time lapse imaging conditions presented by the presenting portion; and

10 instructing the imaging portion to execute time lapse imaging based on the time lapse imaging condition selected from within the plurality of time lapse imaging conditions.

11. The image acquiring method for performing time lapse imaging according to claim 10, further comprising:

15 preparing an exposure time setting portion which sets the exposure time by the setting of the time lapse imaging condition to the imaging portion; and

20 preparing a gain setting portion which enables setting of gain of an output signal from the imaging portion,

 wherein, when the determining determines the contradiction of the time lapse imaging condition in which the exposure time is longer than the imaging interval, the generating the plurality of time lapse imaging conditions changes a set value of the exposure time by the exposure time setting portion to an exposure time shorter than the imaging interval, and

sets a value of the gain set by the gain setting portion based on the value of the gain determined from a ratio of the exposure time after change and the imaging interval.

5 12. The image acquiring method for performing time lapse imaging according to claim 10, further comprising:

 preparing an exposure time setting portion which sets the exposure time by the setting of the time lapse
10 imaging condition to the imaging portion; and

 preparing a brightness correcting portion which enables correction of brightness of an image by an output signal from the imaging portion,

 wherein, when the determining determined the
15 contradiction of the time lapse imaging condition in which the exposure time is longer than the imaging interval, the generating the plurality of time lapse imaging conditions changes a set value of the exposure time by the exposure time setting portion to an
20 exposure time shorter than the imaging interval, and sets a value for correcting the brightness of the image by the brightness correcting portion based on a value determined from a ratio of the exposure time after change and the imaging interval.

25 13. The image acquiring method for performing time lapse imaging according to claim 10, further comprising:

preparing an exposure time setting portion which sets the exposure time by the setting of the time lapse imaging condition to the imaging portion;

5 preparing a gain setting portion which enables setting of gain of an output signal from the imaging portion; and

preparing a brightness correcting portion which enables correction of brightness of an image by the output signal from the imaging portion,

10 wherein, when the determining determines the contradiction of the time lapse imaging condition in which the exposure time is longer than the imaging interval, the generating the plurality of time lapse imaging conditions changes a set value of the exposure time by the exposure time setting portion to an
15 exposure time shorter than the imaging interval, and sets a value of the gain set by the gain setting portion to a value determined from a ratio of the exposure time after change and the imaging interval,
20 and when a set gain value exceeds a maximum gain value, sets the maximum gain value as the value of the gain set by the gain setting portion and sets a value for correcting the brightness of the image by the brightness correcting portion based on a value
25 determined from a ratio of the value of the gain determined from the ratio and the maximum gain value.

14. The image acquiring method for performing time

lapse imaging according to claim 8, wherein the imaging portion includes an imaging portion of a microscopic image acquiring device for fluorescence photography.

15 15. An image acquiring device for performing time lapse imaging, comprising:

 imaging means for performing imaging of a subject;

 time lapse imaging condition setting means for
 setting a time lapse imaging condition including at
 least an exposure time and an imaging interval, prior
10 to the imaging of the subject by the imaging means;

 determining means for determining a contradiction
 of the time lapse imaging condition set by the time
 lapse imaging condition setting means according to
 a predetermined criterion; and

15 presenting means for presenting at least
 information relating to the contradiction of the time
 lapse imaging condition based on a determined result by
 the determining means.

20 16. The image acquiring device for performing
 time lapse imaging according to claim 15, wherein
 the determining means determines the contradiction of
 the time lapse imaging condition by using a relation
 between the exposure time and the imaging interval as
 the predetermined criterion.

25 17. The image acquiring device for performing
 time lapse imaging according to claim 16, further
 comprising:

avoiding condition generating means for generating
a plurality of time lapse imaging conditions for
avoiding the contradiction of the time lapse imaging
condition based on the determined result by the
5 determining means, and causing to present information
relating to the plurality of time lapse imaging
conditions by the presenting means;

selecting means for selecting one of time lapse
imaging condition from within the information relating
10 to the plurality of time lapse imaging conditions
presented by the presenting means; and

instructing means for instructing the imaging
means to execute time lapse imaging based on the time
lapse imaging condition selected by the selecting
15 means.

18. The image acquiring device for performing
time lapse imaging according to claim 17, further
comprising:

exposure time setting means for setting the
20 exposure time set by the time lapse imaging condition
setting means to the imaging means; and

gain setting means for enabling setting of gain of
an output signal from the imaging means,

wherein, when the determining means determines
25 the contradiction of the time lapse imaging condition
in which the exposure time is longer than the imaging
interval, the avoiding condition generating means

changes a set value of the exposure time by the exposure time setting means to an exposure time shorter than the imaging interval, and sets a value of the gain set by the gain setting means based on the value
5 determined from a ratio of the exposure time after change and the imaging interval.

19. The image acquiring device for performing time lapse imaging according to claim 17, further comprising:

10 exposure time setting means for setting the exposure time set by the time lapse imaging condition setting means to the imaging means; and

brightness correcting means for enabling correction of brightness of an image by an output
15 signal from the imaging means,

wherein, when the determining means determines the contradiction of the time lapse imaging condition in which the exposure time is longer than the imaging interval, the avoiding condition generating means
20 changes a set value of the exposure time by the exposure time setting means to an exposure time shorter than the imaging interval, and sets a value for correcting the brightness of the image by the brightness correcting means based on a value determined
25 from a ratio of the exposure time after change and the imaging interval.

20. The image acquiring device for performing

time lapse imaging according to claim 17, further comprising:

exposure time setting means for setting the exposure time set by the time lapse imaging condition setting means to the imaging means;

gain setting means for enabling setting of gain of an output signal from the imaging means; and

brightness correcting means for enabling correction of brightness of the image by the output signal from the imaging means,

wherein, when the determining means determines the contradiction of the time lapse imaging condition in which the exposure time is longer than the imaging interval, the avoiding condition generating means changes a set value of the exposure time by the exposure time setting means to an exposure time shorter than the imaging interval, and sets a value of the gain set by the gain setting means to the value determined from a ratio of the exposure time after change and the imaging interval, and when a set gain value exceeds a maximum gain value, sets the maximum gain value as the value of the gain set by the gain setting means and sets a value for correcting the brightness of the image by the brightness correction means based on the value determined from a ratio of the value of the gain determined from the ratio and the maximum gain value.

21. The image acquiring device for performing time

lapse imaging according to claim 15, wherein the imaging means includes imaging means of a microscopic image acquiring device.